

MIDI Implementation

1. Received data

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
8nH	kkH	ccH
9nH	kkH	00H

n= MIDI channel number: 0H~FH (Ch.1~16)
kk= note number: 00H~7FH (0~127)
vv= note off velocity: 00H~7FH (0~127)

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
kk= note number: 00H~7FH (0~127)
vv= note on velocity: 01H~7FH (1~127)

- Not received when Rx.NOTE MESSAGE= OFF. (Initial value is ON)

● Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
kk= note number: 00H~7FH (0~127)
vv= key pressure: 00H~7FH (0~127)

- The resulting effect is determined by System Exclusive messages. With the initial settings, there will be no effect.

● Control Change

- The value specified by a Control Change message will not be reset even by a ProgramChange, etc.

○ Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

n= MIDI channel number: 0H~FH (Ch.1~16)
mm= Bank number MSB: 00H~7FH
Initial value= 00H
ll= Bank number LSB: 00H~7FH

- Bank Select processing is suspended until a program change is received.

○ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Modulation depth: 00H~7FH (0~127)

- Not received when Rx.MODULATION= OFF (Initial value is ON).
- The resulting effect is determined by System Exclusive messages. With the initial settings, this is Pitch Modulation Depth.

○ Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Portamento Time: 00H~7FH (0~127),
Initial value= 00H (0)

○ Data Entry (Controller number 6, 38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	llH

n= MIDI channel number: 0H~FH (Ch.1~16)
mm, ll= the value of the parameter specified by RPN/NRPN
mm= MSB, ll= LSB

○ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Volume: 00H~7FH (0~127),
Initial value= 64H (100)

- Volume messages are used to adjust the volume balance of each Part.
- Not received when "Volume" RX Event is off.

○ Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= pan: 00H~40H~7FH (Left~Center~Right),
Initial value= 40H (Center)

- Not received when "PanPot" RX Event is Off

○ Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Expression: 00H~7FH (0~127), Initial value= 7FH (127)

- Not received when "Expression" RX Event is Off.

○ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Control value: 00H~7FH (0~127)

- Not received when "Hold" RX Event is Off.

○ Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

○ Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

- Not received when "Sostenuto" RX Event is Off.

○ **Soft (Controller number 67)**

Status	2nd byte	3rd byte
BnH	43H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON
 • Not received when "Soft" RX Event is Off.

○ **Hold 2 (Controller number 69)**

Status	2nd byte	3rd byte
BnH	45H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON
 • Not received when "Hold" RX Event is Off.

○ **Filter Resonance (Timbre/Harmonic Intensity) (Controller number 71)**

Status	2nd byte	3rd byte
BnH	47H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Resonance value: 00H~7FH (-64~0~+63),
 (relative change): Initial value= 40H (no change)

○ **Release Time (Controller number 72)**

Status	2nd byte	3rd byte
BnH	48H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Release Time value: 00H~7FH (-64~0~+63),
 (relative change): Initial value= 40H (no change)

○ **Attack time (Controller number 73)**

Status	2nd byte	3rd byte
BnH	49H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Attack time value (relative 00H~7FH (-64~0~+63),
 change): Initial value=40H (no change)

○ **Cutoff (Controller number 74)**

Status	2nd byte	3rd byte
BnH	4AH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Cutoff value (relative 00H~7FH (-64~0~+63),
 change): Initial value= 40H (no change)

○ **Decay Time (Controller number 75)**

Status	2nd byte	3rd byte
BnH	4BH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Decay Time value: 00H~7FH (-64~0~+63),
 (relative change): Initial value= 40H (no change)

○ **Vibrato Rate (Controller number 76)**

Status	2nd byte	3rd byte
BnH	4CH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Vibrato Rate value: 00H~7FH (-64~0~+63),
 (relative change): Initial value= 40H (no change)

○ **Vibrato Depth (Controller number 77)**

Status	2nd byte	3rd byte
BnH	4DH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Vibrato Depth Value: 00H~7FH (-64~0~+63),
 (relative change): Initial Value= 40H (no change)

○ **Vibrato Delay (Controller number 78)**

Status	2nd byte	3rd byte
BnH	4EH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Vibrato Delay value: 00H~7FH (-64~0~+63),
 (relative change): Initial value=40H (no change)

○ **Portamento control (Controller number 84)**

Status	2nd byte	3rd byte
BnH	54H	kkH

n= MIDI channel number: 0H~FH (Ch.1~16)
 kk= source note number: 00H~7FH (0~127)

- A Note-on received immediately after a Portamento Control message will change continuously in pitch, starting from the pitch of the Source Note Number.
- If a voice is already sounding for a note number identical to the Source Note Number, this voice will continue sounding (i.e., legato) and will, when the next Note-on is received, smoothly change to the pitch of that Note-on.
- The rate of the pitch change caused by Portamento Control is determined by the Portamento Time value.

Example 1

On MIDI	Description	Result
90 3C 40	Note on C4	C4 on
B0 54 3C	Portamento Control from C4	no change
90 40 40	Note on E4 glide from	C4 to E4
80 3C 40	Note off C4	no change
80 40 40	Note off E4	E4 off

Example 2

On MIDI	Description	Result
B0 54 3C	Portamento Control from C4	no change
90 40 40	Note on E4	E4 is played with glide from C4 to E4
80 40 40	Note off E4	E4 off

○ **Effect 1 (Reverb Send Level) (Controller number 91)**

Status	2nd byte	3rd byte
BnH	5BH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Reverb Send Level: 00H~7FH (0~127)

- This message adjusts the Reverb Send Level of each Part.
- Not received when "Reverb" RX Event is Off.

○ **Effect 3 (Chorus Send Level) (Controller number 93)**

Status	2nd byte	3rd byte
BnH	5DH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
 vv= Chorus Send Level: 00H~7FH (0~127)

- This message adjusts the Chorus Send Level of each Part.
- Not received when "Chorus" RX Event is Off.

○ **NRPN MSB/LSB (Controller number 99, 98)**

Status	2nd byte	3rd byte
BnH	63H	mmH
BnH	62H	llH

n= MIDI channel number: 0H~FH (Ch.1~16)
 mm= upper byte (MSB) of the parameter number specified by NRPN
 ll= lower byte (LSB) of the parameter number specified by NRPN

- The value set by NRPN will not be reset even if Program Change or Reset All Controllers is received.
- Not received when "NRPN" RX Event is Off.

NRPN

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used. On the JM-5, NRPN messages can be used to modify sound parameters, etc.

To use these messages, you must first use NRPN messages (Controller number 98 and 99, their order does not matter) to specify the parameter to be controlled, and then use Data Entry messages (Controller number 6) to specify the value of the specified parameter.

Once an NRPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number= 7FH 7FH) when you have finished setting the value of the desired parameter.

On the JM-5, Data entry LSB (Controller number 38) of NRPN is ignored, so it is no problem to send Data entry MSB (Controller number 6) only (without Data entry LSB).

On the JM-5, NRPN can be used to modify the following parameters:

NRPN	Data entry	Function and range
MSB LSB	MSB	
01H 08H	mmH	Vibrato Rate (relative change) mm: 00H~40H~7FH (-64~0~+63)
01H 09H	mmH	Vibrato Depth (relative change) mm: 00H~40H~7FH (-64~0~+63)
01H 0AH	mmH	Vibrato Delay (relative change) mm: 00H~40H~7FH (-64~0~+63)
01H 20H	mmH	TVF Cutoff Frequency (relative change) mm: 00H~40H~7FH (-64~0~+63)

01H 21H	mmH	TVF Resonance (relative change) mm: 00H~40H~7FH (-64~0~+63)
01H 63H	mmH	TVF&TVA Envelope Attack Time (rel. change) mm: 00H~40H~7FH (-64~0~+63)
01H 64H	mmH	TVF&TVA Envelope Decay Time (rel. change) mm: 00H~40H~7FH (-64~0~+63)
01H 66H	mmH	TVF&TVA Env. Release Time (relative change) mm: 00H~40H~7FH (-64~0~+63)
18H rrH	mmH	Drum Instrument Pitch Coarse (relative change) rr: Drum Instrument note number mm: 00H~40H~7FH (-64~0~+63 semitone)
1AH rrH	mmH	Drum Instrument TVA Level (absolute change) rr: Drum Instrument note number mm: 00H~7FH (0~max)
1CH rrH	mmH	Drum Instrument Panpot (absolute change) rr: Drum Instrument note number mm: 00H, 01H~40H~7FH (random, left~center~right)
1DH rrH	mmH	Drum Instr. Reverb Send (absolute change) rr: Drum Instrument note number mm: 00H~7FH (0~max)
1EH rrH	mmH	Drum Instr. Chorus Send (absolute change) rr: Drum Instrument note number mm: 00H~7FH (0~max)
60H rrH	mmH	Equalizer Switch rr: Drum Instrument note number mm: 00H~02H (Global, Instrument, Off)
61H rrH	mmH	Equalizer Low Frequency rr: Drum Instrument note number mm: 00H~05H (90, 150, 180, 300, 360, 600Hz)
62H rrH	mmH	Equalizer Low Gain rr: Drum Instrument note number mm: 00H~1EH (-15~0~+15dB)
63H rrH	mmH	Equalizer Mid Frequency rr: Drum Instrument note number mm: 00H~10H (200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000Hz)
64H rrH	mmH	Equalizer Mid Gain rr: Drum Instrument note number mm: 00H~1EH (-15~0~+15dB)
65H rrH	mmH	Equalizer Mid Gain rr: Drum Instrument note number mm: 00H~04H (0.5, 1.0, 2.0, 4.0, 8.0)
66H rrH	mmH	Equalizer High Frequency rr: Drum Instrument note number mm: 00H~06H (1500, 2000, 3000, 4000, 6000, 8000, 12000Hz)
67H rrH	mmH	Equalizer High Gain rr: Drum Instrument note number mm: 00H~1EH (-15~0~+15dB)
4FH 10H	mmH	Part 1 On / Off mm: 00H~7FH (00-3FH=Off - 40-7FH= On)
4FH 11H	mmH	Part 3 On / Off mm: 00H~7FH (00-3FH=Off - 40-7FH= On)
4FH 13H	mmH	Part 2 On / Off mm: 00H~7FH (00-3FH=Off - 40-7FH= On)
4FH 21H	mmH	Master Volume Part 1-2 On / Off mm: 00H~7FH (00-3FH=Off - 40-7FH= On)
4FH 22H	mmH	Master Volume Part 3 On / Off mm: 00H~7FH (00-3FH=Off - 40-7FH= On)

○ RPN MSB/LSB (Controller number 101, 100)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	IIH

n= MIDI channel number: 0H~FH (Ch.1~16)

mm= upper byte (MSB) of parameter number specified by RPN

II= lower byte (LSB) of parameter number specified by RPN

- Not received when "RPN" RX Event is Off.
- The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

RPN

The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard. To use these messages, you must first use RPN (Controller number 101 and 100, their order does not matter) to specify the parameter to be controlled, and then use Data Entry messages (Controller number 6, 38) to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter.

To prevent accidents, it is recommended that you set RPN to Null (RPN Number= 7FH 7FH) when you have finished setting the value of the desired parameter.

On the JM-5, RPN can be used to modify the following parameters.

RPN	Data entry			Explanation
MSB	LSB	MSB	LSB	
00H 00H	mmH	---	---	Pitch Bend Sensitivity mm: 00H~18H (0~24 semitones) Initial value= 02H (2 semitones) II: ignored (processed as 00H) Up to 2 octaves can be specified in semitone steps.
00H 01H	mmH	IIH	---	Channel Fine Tuning mm, II: 00 00H~40 00H~7F 7FH (-100~0~+99.99 cents), Initial value= 40 00H (+/- 0 cent) Refer to "About the Tuning" on page 15.
00H 02H	mmH	---	---	Master Coarse Tuning mm: 28H~40H~58H (-24~0~+24 semitones), Initial value= 40H (+/-0 semitone) II: ignored (processed as 00H)
00H 05H	mmH	IIH	---	Modulation Depth Range mm: 00H~04H (0~4 semitones) II: 00H~7FH (0~100 cents) 100/128 Cent/Value
7FH 7FH	---	---	---	RPN null Set condition where RPN and NRPN are unspecified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null). Settings already made will not change. mm, II: ignored

● Program Change

Status	2nd byte
CnH	ppH

n= MIDI channel number: 0H~FH (Ch.1~16)

pp= Program number: 00H~7FH (prog.1~prog.128)

- Not received when "Program Change" RX Event is Off.
- After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.

● Channel Pressure

Status	2nd byte
DnH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Channel Pressure: 00H~7FH (0~127)

- Not received when "Channel Pressure" RX Event is Off.
- The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	IIH	mmH

n= MIDI channel number: 0H~FH (Ch.1~16)

mm, II= Pitch Bend value: 00 00H~40 00H~7F 7FH (-8192~0~+8191)

- Not received when "Pitch Bender" RX Event is Off.
- The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- When the message is received, all notes currently sounding on the corresponding channel will be turned Off.

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- When this message is received, the following controllers will be set to their reset values.

Controller	Reset value
Pitch Bend Change	+/-0 (center)
Polyphonic Key Pressure	0 (off)
Channel Pressure	0 (off)

Modulation	0 (off)
Expression	127 (max)
Hold 1	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft	0 (off)
RPN	unset; previously set data do not change
NRPN	unset; previously set data do not change

● All Notes Off (Controller number 123)

Status	2nd byte	3rd byte
BnH	7BH	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- When All Notes Off is received, all notes on the corresponding channel will be turned off. However, if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.

● OMNI OFF (Controller number 124)

Status	2nd byte	3rd byte
BnH	7CH	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- The same processing will be carried out as when All Notes Off is received.

● OMNI ON (Controller number 125)

Status	2nd byte	3rd byte
BnH	7DH	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- The same processing will be carried out as when All Notes Off is received. OMNI ON will not be turned on.

● MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n= MIDI channel number: 0H~FH (Ch.1~16)

mm= mono number: 00H~10H (0~16)

- The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 4 (M= 1) regardless of the value of "mm (mono number)."

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 3.

■ System Realtime Messages

● Active Sensing

Status

FEH

- When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 420 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

● Timing Clock

Status

F8H

- * SONG: Received when Song RX parameter (MIDI) is set to AUTO or MIDI.

- When "Timing Clock" message is received, the Song is synchronized to an external clock according to the following table.

Song Sync RX	Response
Internal	A Song will neither start/stop nor follow the tempo of the external Timing Clock (F8) and "Start/Stop" (FA/FC) messages.
Auto	If a Song receives MIDI "Start/Stop" (FA/FC), it will follow Internal or External clock, depending on whether "MIDI Clock" (F8) messages are received.
MIDI	If a Song receives MIDI "Start/Stop" (FA/FC) it will follow External "MIDI Clock" (F8) messages and hereafter wait until they are received.
Remote	If a Song receives MIDI "Start/Stop" (FA/FC) it will follow only Internal tempo and thus ignore incoming "MIDI Clock" (F8) messages.

● Start

Status

FAH

- * SONG: Received when Song RX parameter (MIDI) is set to AUTO, MIDI or REMOTE.

● Continue

(Song playback only)

Status

FBH

- Received when Song RX parameter (MIDI) is set to AUTO, MIDI or REMOTE.
- When a "Continue" message is received, the Song continues playing from the current position.

● Stop

Status

FCH

- * SONG: Received when Song RX parameter (MIDI) is set to AUTO, MIDI or REMOTE.

- When a "Stop" message is received, the Song stops playing.

■ System Common Messages

● Song Position Pointer

Status	2nd byte	3rd byte
F2H	XXH	YYH

XX= Song Position (Bar) LSB

YY= Song Position (Bar) MSB

■ System Exclusive Messages

Status	Data byte	Status
F0H	iiH, ddH,, eeH	F7H
F0H:	System Exclusive Message status ii= ID number: an ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH). dd, ..., ee= data: 00H~7FH (0~127)	
F7H:	EOX (End Of Exclusive)	

○ GM1 System On

This message resets the internal settings of the unit to the General MIDI 1 initial state.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 01H	F7H
Byte	Explanation	
F0H	Exclusive status	
7EH	ID number (Universal Non-realtime Message)	
7FH	Device ID (Broadcast)	
09H	Sub ID#1 (General MIDI Message)	
01H	Sub ID#2 (General MIDI 1 On)	
F7H	EOX (End Of Exclusive)	
<ul style="list-style-type: none"> When this message is received, Rx.BANK SELECT will be OFF and Rx.NRPN will be OFF. There must be an interval of at least 50 ms between this message and the next message. Only for the Song parts. 		

○ GM2 System On

Status	Data byte	Status
F0H	7EH 7FH 09H 03H	F7H
Byte	Explanation	
F0H	Exclusive status	
7EH	ID number (Universal Non-realtime Message)	
7FH	Device ID (Broadcast)	
09H	Sub ID#1 (General MIDI Message)	
03H	Sub ID#2 (General MIDI 2 On)	
F7H	EOX (End Of Exclusive)	
<ul style="list-style-type: none"> When this message is received, the JM-5 will be able to receive the messages specified by General MIDI 2, and use the General MIDI 2 sound map. Only for the Song parts. 		

○ GM System Off

GM System Off is a command message that resets the internal state of the JM-5 from the GM state to its native condition. The JM-5 will reset to the GS default state.

Status	Data byte	Status
F0H	F0H 7EH 7FH 09H 02H	F7H
Byte	Explanation	
F0H	Exclusive status	
7EH	ID number (Universal Non-realtime Message)	
7FH	Device ID (Broadcast)	
09H	Sub ID#1 (General MIDI Message)	
02H	Sub ID#2 (General MIDI Off)	
F7H	EOX (End Of Exclusive)	
<ul style="list-style-type: none"> When this message is received, the JM-5 will reset to the GS default state. Only for the Song parts. 		

○ GS reset

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message appears at the beginning of GS music data, and a GS device that receives this message will automatically be set to the proper state to correctly play back GS music data.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41HF7H	
Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H~1FH (1~32), Initial value is 10H (17))	
42H	Model ID (GS)	
12H	Command ID (DT1)	
40H	Address MSB	
00H	Address	
7FH	Address LSB	
00H	Data (GS reset)	
41H	Checksum	
F7H	EOX (End Of Exclusive)	

- When this message is received, Rx.NRPN will be ON.
- There must be an interval of at least 50 ms between this message and the next.
- Only for the Song parts.

○ Exit GS Mode

"Exit GS Mode" resets the internal settings of the unit to Arranger Mode I initial state.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, 40H, 00H, 7FH, 7FH, 42H	F7H
Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H~1FH (1~32) Initial value is 10H(17))	
42H	Model ID (GS)	
12H	Command ID (DT1)	
40H	Address MSB	
00H	Address	
7FH	Address LSB	
7FH	Data (Exit GS Mode)	
42H	Checksum	
F7H	EOX (End Of Exclusive)	

- There must be an interval of at least 100 ms between this message and the next message.
- Only for the Song parts.

● Universal Realtime System Exclusive Messages

○ Master Volume

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, IIH, mmH	F7H
Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
04H	Sub ID#1 (Device Control messages)	
01H	Sub ID#2 (Master Volume)	
IIH	Master Volume lower byte	
mmH	Master Volume upper byte	
F7H	EOX (End Of Exclusive)	
<ul style="list-style-type: none"> The lower byte (IIH) of Master Volume will be handled as 00H. 		

○ Master Fine Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 03H, 01H, mmH	F7H
Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
04H	Sub ID#1 (Device Control)	
03H	Sub ID#2 (Master Fine Tuning)	
01H	Master Fine Tuning LSB	
mmH	Master Fine Tuning MSB	
F7H	EOX (End Of Exclusive)	
mm, ll : 00 00H~40 00H~7F 7FH (-100~-0~+99.9 [cents])		

○ Master Coarse Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 04H, 01H, mmH	F7H
Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
04H	Sub ID#1 (Device Control)	
04H	Sub ID#2 (Master Coarse Tuning)	
01H	Master Coarse Tuning LSB	
mmH	Master Coarse Tuning MSB	
F7H	EOX (End Of Exclusive)	
llH: ignored (processed as 00H)		
mmH: 28H~40H~58H (-24~-0~+24 [semitones])		

● Global Parameter Control

Global Parameter Control messages are newly provided for General MIDI 2.

○ Reverb Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 01H, ppH, vvH	F7H
Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
04H	Sub ID#1 (Device Control)	
05H	Sub ID#2 (Global Parameter Control)	
01H	Slot path length	
01H	Parameter ID width	
01H	Value width	
01H	Slot path MSB	
01H	Slot path LSB (Effect 0101: Reverb)	
ppH	Parameter to be controlled.	
vvH	Value for the parameter.	
F7H	EOX (End Of Exclusive)	
pp=0 Reverb Type		
vv= 00H Small Room (Room1)		
vv= 01H Medium Room (Room2)		
vv= 02H Large Room (Room3)		
vv= 03H Medium Hall (Hall1)		
vv= 04H Large Hall (Hall2)		
vv= 08H Plate (Plate)		
pp=1 Reverb Time		
vv= 00H~7FH 0~127		

○ Chorus Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 02H, ppH, vvH	F7H
Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
04H	Sub ID#1 (Device Control)	
05H	Sub ID#2 (Global Parameter Control)	
01H	Slot path length	
01H	Parameter width	
01H	Value width	
01H	Slot path MSB	
02H	Slot path LSB (Effect 0102: Chorus)	
ppH	Parameter to be controlled.	
vvH	Value for the parameter.	
F7H	EOX (End Of Exclusive)	

pp=0	Chorus Type
	vv=0 Chorus1
	vv=1 Chorus2
	vv=2 Chorus3
	vv=3 Chorus4
	vv=4 FB Chorus
	vv=5 Flanger
pp=1	Mod Rate
	vv= 00H~7FH 0~127
pp=2	Mod Depth
	vv= 00H~7FH 0~127
pp=3	Feedback
	vv= 00H~7FH 0~127
pp=4	Send To Reverb
	vv= 00H~7FH 0~127

○ Channel Pressure

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 01H, 0nH, ppH, rrH	F7H
Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
09H	Sub ID#1 (Controller Destination Setting)	
01H	Sub ID#2 (Channel Pressure)	
0nH	MIDI Channel (00~0F)	
ppH	Controlled parameter	
rrH	Controlled range	
F7H	EOX (End Of Exclusive)	

pp=0	Pitch Control
	rr= 28H~58H -24~+24 [semitones]
pp=1	Filter Cutoff Control
	rr= 00H~7FH -9600~+9450 [cents]
pp=2	Amplitude Control
	rr= 00H~7FH 0~200%
pp=3	LFO Pitch Depth
	rr= 00H~7FH 0~600 [cents]
pp=4	LFO Filter Depth
	rr= 00H~7FH 0~2400 [cents]
pp=5	LFO Amplitude Depth
	rr= 00H~7FH 0~100%

○ Controller

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 03H, 0nH, ccH, ppH, rrH	F7H
Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
09H	Sub ID#1 (Controller Destination Setting)	
03H	Sub ID#2 (Control Change)	
0nH	MIDI Channel (00~0F)	
ccH	Controller number (01~1F, 40~5F)	
ppH	Controlled parameter	
rrH	Controlled range	
F7H	EOX (End Of Exclusive)	

pp=0	Pitch Control
	rr= 28H~58H -24~+24 [semitones]
pp=1	Filter Cutoff Control
	rr= 00H~7FH -9600~+9450 [cents]
pp=2	Amplitude Control
	rr= 00H~7FH 0~200%
pp=3	LFO Pitch Depth
	rr= 00H~7FH 0~600 [cents]
pp=4	LFO Filter Depth
	rr= 00H~7FH 0~2400 [cents]
pp=5	LFO Amplitude Depth
	rr= 00H~7FH 0~100%

○ Scale/Octave Tuning Adjust

Status	Data byte	Status
F0H	7EH, 7FH, 08H, 08H, ffH, ggH, hhH, ssH...	F7
Byte	Explanation	
F0H	Exclusive status	
7EH	ID number (Universal Non-realtime Message)	
7FH	Device ID (Broadcast)	
08H	Sub ID#1 (MIDI Tuning Standard)	
08H	Sub ID#2 (scale/octave tuning 1-byte form)	
ffH	Channel/Option byte1	
	bits 0~1= channel 15 to 16	
	bit 2 to 6= Undefined	
ggH	Channel byte2	
	bits 0~6= channel 8 to 14	
hhH	Channel byte3	
	bits 0~6= channel 1 to 7	
ssH	12 byte tuning offset of 12 semitones from C to B	
	00H= -64 [cents]	
	40H= 0 [cents] (equal temperament)	
	7FH= +63 [cents]	
F7H	EOX (End Of Exclusive)	

2. Transmitted data

Data transmission is only possible when theJM-5 is connected to the USB-MIDI socket and after selecting the MENU→ ADVANCED→ MIDI→ "SONG PART" preset.

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
9nH	kkH	00H
n= MIDI channel number:	0H~FH (Ch.1~16)	
kk= note number:	00H~7FH (0~127)	
vv= note off velocity:	00H~7FH (0~127)	

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH
n= MIDI channel number:	0H~FH (Ch.1~16)	
kk= note number:	00H~7FH (0~127)	
vv= note on velocity:	01H~7FH (1~127)	

● Control Change

- The value specified by a Control Change message will not be reset even by a ProgramChange, etc.

○ Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

n= MIDI channel number: 0H~FH (Ch.1~16)
mm= Bank number MSB: 00H~7FH
ll= Bank number LSB: 00H~7FH

- Not transmitted when "Program Change" Tx Event is Off.

○ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Modulation depth: 00H~7FH (0~127)

- Not transmitted when "Modulation" TX Event= OFF.

○ Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Portamento Time: 00H~7FH (0~127),
Initial value= 00H (0)

- This adjusts the rate of pitch change when Portamento is ON or when using thePortamento Control. A value of 0 results in the fastest change.

○ Data Entry (Controller number 6, 38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	llH

n= MIDI channel number: 0H~FH (Ch.1~16)
mm, ll= the value of the parameter specified by RPN/NRPN
mm= MSB, ll= LSB

○ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= Volume: 00H~7FH (0~127), Initial value= 64H (100)

- Volume messages are used to adjust the volume balance of each Part.
- Not transmitted when "Volume" TX Event is off.

○ Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)
vv= pan: 00H~40H~7FH (Left~Center~Right),
Initial value= 40H (Center)

- The stereo position can be adjusted in 127 steps.
- Not received when "PanPot" RX Event is Off

○ **Expression (Controller number 11)**

Status	2nd byte	3rd byte
BnH	0BH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Expression: 00H~7FH (0~127), Initial value= 7FH (127)

- This adjusts the volume of a Part. It can be used independently from Volume messages. Expression messages are used for musical expression within a performance, e.g., expression pedal movements, crescendo and decrescendo.
- Not transmitted when "Expression" TX Event is Off.

○ **Hold 1 (Controller number 64)**

Status	2nd byte	3rd byte
BnH	40H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Control value: 00H~7FH (0~127)

- Not transmitted when "Hold" TX Event is Off.

○ **Portamento (Controller number 65)**

Status	2nd byte	3rd byte
BnH	41H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

○ **Sostenuto (Controller number 66)**

Status	2nd byte	3rd byte
BnH	42H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

- Not transmitted when "Sostenuto" TX Event is Off.

○ **Soft (Controller number 67)**

Status	2nd byte	3rd byte
BnH	43H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

- Not transmitted when "Soft" TX Event is Off.

○ **Hold 2 (Controller number 69)**

Status	2nd byte	3rd byte
BnH	45H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

- Not transmitted when "Hold" TX Event is Off.

○ **Filter Resonance (Timbre/Harmonic Intensity) (Controller number 71)**

Status	2nd byte	3rd byte
BnH	47H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Resonance value (relative change): 00H~7FH (-64~0~+63), Initial value= 40H (no change)

○ **Release Time (Controller number 72)**

Status	2nd byte	3rd byte
BnH	48H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Release Time value (relative change): 00H~7FH (-64~0~+63), Initial value= 40H (no change)

○ **Attack time (Controller number 73)**

Status	2nd byte	3rd byte
BnH	49H	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Attack time value (relative change): 00H~7FH (-64~0~+63), Initial value= 40H (no change)

○ **Cutoff (Controller number 74)**

Status	2nd byte	3rd byte
BnH	4AH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Cutoff value (relative change): 00H~7FH (-64~0~+63), Initial value= 40H (no change)

○ **Decay Time (Controller number 75)**

Status	2nd byte	3rd byte
BnH	4BH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Decay Time value (relative change): 00H~7FH (-64~0~+63), Initial value= 40H (no change)

○ **Vibrato Rate (Controller number 76)**

Status	2nd byte	3rd byte
BnH	4CH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Vibrato Rate value (relative change): 00H~7FH (-64~0~+63), Initial value= 40H (no change)

○ **Vibrato Depth (Controller number 77)**

Status	2nd byte	3rd byte
BnH	4DH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Vibrato Depth Value (relative change): 00H~7FH (-64~0~+63), Initial Value= 40H (no change)

○ **Vibrato Delay (Controller number 78)**

Status	2nd byte	3rd byte
BnH	4EH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Vibrato Delay value (relative change): 00H~7FH (-64~0~+63), Initial value= 40H (no change)

○ **Portamento control (Controller number 84)**

Status	2nd byte	3rd byte
BnH	54H	kkH

n= MIDI channel number: 0H~FH (Ch.1~16)

kk= source note number: 00H~7FH (0~127)

○ **Effect 1 (Reverb Send Level) (Controller number 91)**

Status	2nd byte	3rd byte
BnH	5BH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Reverb Send Level: 00H~7FH (0~127)

- This message adjusts the Reverb Send Level of each Part.
- Not transmitted when "Reverb" TX Event is Off.

○ **Effect 3 (Chorus Send Level) (Controller number 93)**

Status	2nd byte	3rd byte
BnH	5DH	vvH

n= MIDI channel number: 0H~FH (Ch.1~16)

vv= Chorus Send Level: 00H~7FH (0~127)

- This message adjusts the Chorus Send Level of each Part.
- Not transmitted when "Chorus" TX Event is Off.

○ **NRPN MSB/LSB (Controller number 99, 98)**

Status	2nd byte	3rd byte
BnH	63H	mmH
BnH	62H	llH

n= MIDI channel number: 0H~FH (Ch.1~16)

mm= upper byte (MSB) of the parameter number specified by NRPN

ll= lower byte (LSB) of the parameter number specified by NRPN

- Not transmitted when "NRPN" TX Event is Off.

NRPN

The NRPN (Non Registered Parameter Number) message allows you to use an extended range of control changes, which are not defined by the MIDI specification. NRPNs provide a great deal of freedom, and can be used with any manufacturer's devices. As a result, any particular parameter number can easily mean one thing when used for a certain device, and mean something completely different on another device.

Note that RPNs and NRPNs require that a multiple number of messages be processed in the correct order. However, a majority of the sequencers currently on the market cannot always be relied on to consistently send messages in the proper order if the messages are located at almost exactly the same point in time.

On GS instruments, NRPN can be used to modify the following parameters. The range of values for relative change parameters will be different with certain models. Please see the explanation that follows the chart.:

NRPN	Data entry	Function and range
<u>MSB LSB</u>	<u>MSB</u>	
01H 08H	mmH	Vibrato Rate (relative change) mm: 00H~40H~7FH (-64~-0~+63)
01H 09H	mmH	Vibrato Depth (relative change) mm: 00H~40H~7FH (-64~-0~+63)
01H 0AH	mmH	Vibrato Delay (relative change) mm: 00H~40H~7FH (-64~-0~+63)
01H 20H	mmH	TVF Cutoff Frequency (relative change) mm: 00H~40H~7FH (-64~-0~+63)
01H 21H	mmH	TVF Resonance (relative change) mm: 00H~40H~7FH (-64~-0~+63)
01H 63H	mmH	TVF&TVA Envelope Attack Time (rel. change) mm: 00H~40H~7FH (-64~-0~+63)
01H 64H	mmH	TVF&TVA Envelope Decay Time (rel. change) mm: 00H~40H~7FH (-64~-0~+63)
01H 66H	mmH	TVF&TVA Env. Release Time (relative change) mm: 00H~40H~7FH (-64~-0~+63)
18H rrH	mmH	Drum Instrument Pitch Coarse (relative change) rr: Drum Instrument note number mm: 00H~40H~7FH (-64~-0~+63 semitone)
1AH rrH	mmH	Drum Instrument TVA Level (absolute change) rr: Drum Instrument note number mm: 00H~7FH (0~max)
1CH rrH	mmH	Drum Instrument Panpot (absolute change) rr: Drum Instrument note number mm: 00H, 01H~40H~7FH (random, left~center~right)
1DH rrH	mmH	Drum Instr. Reverb Send (absolute change) rr: Drum Instrument note number mm: 00H~7FH (0~max)
1EH rrH	mmH	Drum Instr. Chorus Send (absolute change) rr: Drum Instrument note number mm: 00H~7FH (0~max)
60H rrH	mmH	Equalizer Switch rr: Drum Instrument note number mm: 00H~02H (Global, Instrument, Off)
61H rrH	mmH	Equalizer Low Frequency rr: Drum Instrument note number mm: 00H~05H (90, 150, 180, 300, 360, 600Hz)
62H rrH	mmH	Equalizer Low Gain rr: Drum Instrument note number mm: 00H~1EH (-15~-0~+15dB)
63H rrH	mmH	Equalizer Mid Frequency rr: Drum Instrument note number mm: 00H~10H (200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000Hz)
64H rrH	mmH	Equalizer Mid Gain rr: Drum Instrument note number mm: 00H~1EH (-15~-0~+15dB)
65H rrH	mmH	Equalizer Mid Gain rr: Drum Instrument note number mm: 00H~04H (0.5, 1.0, 2.0, 4.0, 8.0)
66H rrH	mmH	Equalizer High Frequency rr: Drum Instrument note number mm: 00H~06H (1500, 2000, 3000, 4000, 6000, 8000, 12000Hz)
67H rrH	mmH	Equalizer High Gain rr: Drum Instrument note number mm: 00H~1EH (-15~-0~+15dB)

○ RPN MSB/LSB (Controller number 101, 100)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	llH

n= MIDI channel number: 0H~FH (Ch.1~16)

mm= upper byte (MSB) of parameter number specified by RPN

ll= lower byte (LSB) of parameter number specified by RPN

- Not transmitted when "RPN" RX Event is Off.

RPN

The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard.

On the JM-5, RPN can be used to modify the following parameters.

RPN	Data entry	Explanation
<u>MSB LSB</u>	<u>MSB</u> <u>LSB</u>	
00H 00H	mmH —	Pitch Bend Sensitivity mm: 00H~18H (0~24 semitones) Initial value= 02H (2 semitones) ll: ignored (processed as 00H) Up to 2 octaves can be specified in semitone steps. • Only for Upper2
00H 01H	mmH llH	Channel Fine Tuning mm, ll: 00 00H~40 00H~7F 7FH (-100~-0~+99.99 cents), Initial value= 40 00H (+/- 0 cent) Refer to "About the Tuning" on page 15.
00H 02H	mmH —	Master Coarse Tuning mm: 28H~40H~58H (-24~-0~+24 semitones), Initial value= 40H (+/-0 semitone) ll: ignored (processed as 00H)
7FH 7FH	— —	RPN null Set condition where RPN and NRPN are unspecified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null). Settings already made will not change. mm, ll: ignored

● Program Change

Status	2nd byte
CnH	ppH

n= MIDI channel number: 0H~FH (Ch.1~16)

pp= Program number: 00H~7FH (prog.1~prog.128)

- Not transmitted when "Program Change" TX Event is Off.

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

n= MIDI channel number: 0H~FH (Ch.1~16)

mm, ll= Pitch Bend value: 00 00H~40 00H~7F 7FH (-8192~-0~+8191)

- Not transmitted when "Pitch Bender" TX Event is Off.

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- When the message is transmitted, all notes currently sounding on the corresponding channel will be turned Off.

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- When this message is transmitted, the following controllers will be set to their reset values.

Controller	Reset value
Pitch Bend Change	+/-0 (center)
Polyphonic Key Pressure	0 (off)
Channel Pressure	0 (off)
Modulation	0 (off)
Expression	127 (max)
Hold 1	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft	0 (off)
RPN	unset; previously set data do not change
NRPN	unset; previously set data do not change

● MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n= MIDI channel number: 0H~FH (Ch.1~16)

mm= mono number: 00H~10H (0~16)

- The corresponding channel is set to Mode 4 (M= 1).

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n= MIDI channel number: 0H~FH (Ch.1~16)

- The corresponding channel is set to Mode 3.

■ System Realtime Messages

● Active Sensing

Status

FEH

- This message is transmitted at intervals of approximately 250 ms.

● Timing Clock

Status

F8H

● Start

Status

FAH

● Continue (Song playback only)

Status

FBH

- This message is transmitted when the sequencer is not started from the beginning.

● Stop

Status

FCH

■ System Common Messages

● Song Position Pointer

Status	2nd byte	3rd byte
F2H	XXH	YYH

XX= Song Position (Bar) LSB

YY= Song Position (Bar) MSB

■ System Exclusive Messages

Status	Data byte	Status
F0H	iiH, ddH,,eeH	F7H
F0H:	System Exclusive Message status ii= ID number: an ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH). dd,...,ee= data: 00H~7FH (0~127)	
F7H:	EOX (End Of Exclusive)	

○ GS reset

GS Reset is a message that resets the internal settings of a device to the GS initial state. This message appears at the beginning of GS music data, and a GS device that receives this message will automatically be set to the proper state to correctly play back GS music data.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41HF7H	
Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H~1FH (1~32), Initial value is 10H (17))	
42H	Model ID (GS)	
12H	Command ID (DT1)	
40H	Address MSB	
00H	Address	
7FH	Address LSB	
00H	Data (GS reset)	
41H	Checksum	
F7H	EOX (End Of Exclusive)	

3. Individual parameter transmission and reception

Individual Parameter Transmission transmits data (or requests data) for one parameter as one exclusive message (one packet of "F0 F7"). In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map". Addresses marked at "#" cannot be used as starting addresses.

■ System Exclusive messages

Data Set 1 (DT1) is the only System Exclusive messages transmitted by the JM-5.

● Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sumF7H	
Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H~1FH, Initial value is 10H)	
42H	Model ID (GS)	
12H	Command ID (DT1)	
aaH	Address MSB: upper byte of the starting address of the data to be sent	
bbH	Address: middle byte of the starting address of the data to be sent	
ccH	Address LSB: lower byte of the starting address of the data to be sent.	
ddH	Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.	
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

- The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size.
- Data larger than 128 bytes will be divided into packets of 128 bytes or less, and each packet will be sent at an interval of about 40 ms.
- Regarding the checksum, please refer to "Example of an Exclusive message checksum calculation" on page 15.

● Patch parameters

○ Patch common parameters

Parameters that apply to all Parts of each module are called "Patch Common" parameters.

Address(H)	Size(H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 00 00	00 00 04	0018~07E8	MASTER TUNE	-100.0~+100.0 [cents]	00 04 00 00	0 [cents]
40 00 01#				Use nibblized data.		
40 00 02#						
40 00 03#						
• Refer to "About the Tuning" on page 15.						
40 00 04	00 00 01	00~7F	MASTER VOLUME	0~127 (= F0 7F 7F 04 01 00 vv F7)	7F	127
40 00 05	00 00 01	28~58	MASTER KEY-SHIFT	-24~+24 [semitones]	40	0 [semitones]
40 00 06	00 00 01	01~7F	MASTER PAN	-63 (LEFT)~+63 (RIGHT)	40	0 (CENTER)
40 00 7F	00 00 01	00	MODE SET	00 = GS Reset (Rx. only)		
40 01 30	00 00 01	00~07	REVERB MACRO	00: Room 1 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	04	Hall 2
40 01 31	00 00 01	00~07	REVERB CHARACTER	0~7	04	4
40 01 32	00 00 01	00~07	REVERB PRE-LPF	0~7	00	0
40 01 33	00 00 01	00~7F	REVERB LEVEL	0~127	40	64
40 01 34	00 00 01	00~7F	REVERB TIME	0~127	40	64
40 01 35	00 00 01	00~7F	REVERB DELAY FEEDBACK	0~127	00	0
40 01 37	00 00 01	00~7F	REVERB PREDELAY TIME	0~127 [ms]	00	0

- REVERB MACRO is a macro parameter that allows global setting of reverb parameters. When you select the reverb type with REVERB MACRO, each reverb parameter will be set to their most suitable value.
- REVERB CHARACTER is a parameter that changes the reverb algorithm. The value of REVERB CHARACTER corresponds to the REVERB MACRO of the same number.

Address(H)	Size(H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 01 38	00 00 01	00~07	CHORUS MACRO	00: Chorus 1 01: Chorus 2 02: Chorus 3 03: Chorus 4 04: Feedback Chorus 05: Flanger 06: Short Delay 07: Short Delay(FB)	02	Chorus 3
40 01 39	00 00 01	00~07	CHORUS PRE-LPF	0~7	00	0
40 01 3A	00 00 01	00~7F	CHORUS LEVEL	0~127	40	64
40 01 3B	00 00 01	00~7F	CHORUS FEEDBACK	0~127	08	8
40 01 3C	00 00 01	00~7F	CHORUS DELAY	0~127	50	80
40 01 3D	00 00 01	00~7F	CHORUS RATE	0~127	03	3
40 01 3E	00 00 01	00~7F	CHORUS DEPTH	0~127	13	19
40 01 3F	00 00 01	00~7F	CHORUS SEND LEVEL TO REVERB	0~127	00	0
40 01 40	00 00 01	00~7F	CHORUS SEND LEVEL TO DELAY	0~127	00	0

- CHORUS MACRO is a macro parameter that allows global setting of chorus parameters. When you select the chorus type with CHORUS MACRO, each chorus parameter will be set to their most suitable value.

○ Patch Part parameters

The JM-5 has 19 Parts: 3 parts assigned to External In, and 16 parts for Songs.

For External part control, use the address [50 xx xx]

For Song part control, use the address [40 xx xx]

The 19 Parts are:

External In parts			Song parts			
Track	Name	MIDI channel	Track	Name	MIDI channel	SysEx X=
1	Tone 1	1	1	Part 1	1	X= 1
2	Tone 2	2	2	Part 2	2	X= 2
3	Tone 3	3	3	Part 3	3	X= 3
4	—	—	4	Part 4	4	X= 4
5	—	—	5	Part 5	5	X= 5
6	—	—	6	Part 6	6	X= 6
7	—	—	7	Part 7	7	X= 7
8	—	—	8	Part 8	8	X= 8
9	—	—	9	Part 9	9	X= 9
10	—	—	10	Part 10	10	X= 0
11	—	—	11	Part 11	11	X= A
12	—	—	12	Part 12	12	X= B
13	—	—	13	Part 13	13	X= C
14	—	—	14	Part 14	14	X= D
15	—	—	15	Part 15	15	X= E
16	—	—	16	Part 16	16	X= F

The relation between Part number and Block number is as follows.

x...BLOCK NUMBER (0~F)	Part 1	(default MIDIch = 1)	x=1
	Part 2	(default MIDIch = 2)	x=2
	:	:	:
	Part 9	(default MIDIch = 9)	x=9
	Part10	(default MIDIch =10)	x=0
	Part11	(default MIDIch =11)	x=A
	Part12	(default MIDIch =12)	x=B
	:	:	:
	Part16	(default MIDIch =16)	x=F

- n... MIDI channel number (0~F) of the BLOCK.

In the following map, the control numbers of the control changes are indicated as CC#.

Address(H)	Size(H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 00	00 00 02	00~7F	TONE NUMBER	CC#00 VALUE 0~127	00	0
40 1x 01#		00~7F		P.C. VALUE 1~128	00	1
40 1x 02	00 00 01	00~10	Rx. CHANNEL	1~16, OFF	Same as the Part Number	
40 1x 03	00 00 01	00~01	Rx. PITCH BEND	OFF/ON	01	ON
40 1x 04	00 00 01	00~01	Rx. CH PRESSURE (CAf)	OFF/ON	01	ON
40 1x 05	00 00 01	00~01	Rx. PROGRAM CHANGE	OFF/ON	01	ON
40 1x 06	00 00 01	00~01	Rx. CONTROL CHANGE	OFF/ON	01	ON
40 1x 07	00 00 01	00~01	Rx. POLY PRESSURE (PAf)	OFF/ON	01	ON
40 1x 08	00 00 01	00~01	Rx. NOTE MESSAGE	OFF/ON	01	ON
40 1x 09	00 00 01	00~01	Rx. RPN	OFF/ON	01	ON
40 1x 0A	00 00 01	00~01	Rx. NRPN	OFF/ON	00 (01*)	OFF (ON*)
40 1x 0B	00 00 01	00~01	Rx. MODULATION	OFF/ON	01	ON
40 1x 0C	00 00 01	00~01	Rx. VOLUME	OFF/ON	01	ON
40 1x 0D	00 00 01	00~01	Rx. PANPOT	OFF/ON	01	ON
40 1x 0E	00 00 01	00~01	Rx. EXPRESSION	OFF/ON	01	ON
40 1x 0F	00 00 01	00~01	Rx. HOLD1	OFF/ON	01	ON
40 1x 10	00 00 01	00~01	Rx. PORTAMENTO	OFF/ON	01	ON
40 1x 11	00 00 01	00~01	Rx. SOSTENUTO	OFF/ON	01	ON
40 1x 12	00 00 01	00~01	Rx. SOFT	OFF/ON	01	ON
40 1x 13	00 00 01	00~01	MONO/POLY MODE	Mono/Poly	01	Poly
			(=CC# 126 01/CC# 127 00)			
40 1x 15	00 00 01	00~02	USE FOR RHYTHM PART	0 = OFF 1 = MAP1 2 = MAP2	00 at 0 01 at x=0	OFF (Normal Part) MAP1 (Drum Part)

- This parameter sets the Drum Map of the Part used as the Drum Part. The JM-5 can simultaneously (in different Parts) use up to two Drum Maps (MAP1, MAP2). With the initial settings, Part10 (MIDI CH=10, x=0) is set to MAP1 (1), and other Parts are set to normal instrumental Parts (OFF(0)).
- Only for Song parts.

Address(H)	Size(H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 16	00 00 01	28~58	PITCH KEY SHIFT	-24~+24 [semitones]	40	0 [semitones]
40 1x 17	00 00 02	08~F8	PITCH OFFSET FINE	-12.0~+12.0 [Hz]	08 00	0 [Hz]
40 1x 18#				Use nibbled data.		

- PITCH OFFSET FINE allows you to alter, by a specified frequency amount, the pitch at which notes will sound. This parameter differs from the conventional Fine Tuning (RPN #1) parameter in that the amount of frequency alteration (in Hertz) will be identical no matter which note is played. When a multiple number of Parts, each of which has been given a different setting for PITCH OFFSET FINE, are sounded by means of an identical note number, you can obtain a Celeste effect.
- Only for Song parts.

40 1x 19	00 00 01	00~7F	PART LEVEL	0~127 (=CC# 7)	64	100
40 1x 1A	00 00 01	00~7F	VELOCITY SENSE DEPTH	0~127	40	64
40 1x 1B	00 00 01	00~7F	VELOCITY SENSE OFFSET	0~127	40	64
40 1x 1C	00 00 01	00~7F	PART PANPOT	-64 (Left)~+63 (Right)	40	0 (CENTER)
40 1x 1D	00 00 01	00~7F	KEYBOARD RANGE	LOW (C-1)~(G9)	00	C-1

40 1x 1E	00 00 01	00~7F	KEYBOARD RANGE	HIGH (C-1)~(G9)	7F	G9
40 1x 1F	00 00 01	00~5F	CC1 CONTROLLER NUMBER	0~95	10	16
40 1x 20	00 00 01	00~5F	CC2 CONTROLLER NUMBER	0~95	11	17
40 1x 21	00 00 01	00~7F	CHORUS SEND LEVEL	0~127 (=CC# 93)	00	0
40 1x 22	00 00 01	00~7F	REVERB SEND LEVEL	0~127 (=CC# 91)	28	40
40 1x 23	00 00 01	00~01	Rx.BANK SELECT	OFF/ON	01	ON
40 1x 24	00 00 01	00~01	RX BANK SELECT LSB	OFF/ON	01	ON
40 1x 2A	00 00 02	00 00~40 00~7F 7F	PITCH FINE TUNE	-100~0~+100 [cents] (= RPN#1)	40 00	0
40 1x 2B#						
40 1x 30	00 00 01	00~7F	TONE MODIFY	1 -64~+63 (=NRPN# 8/CC#76)	40	0
40 1x 31	00 00 01	00~7F	Vibrato Rate	-64~+63 (=NRPN# 9/CC#77)	40	0
40 1x 32	00 00 01	00~7F	TONE MODIFY2	-64~+63 (=NRPN# 32/CC#74)	40	0
40 1x 33	00 00 01	00~7F	Vibrato Depth	-64~+63 (=NRPN# 33/CC#71)	40	0
40 1x 34	00 00 01	00~7F	TONE MODIFY3	-64~+63 (=NRPN# 99/CC#73)	40	0
40 1x 35	00 00 01	00~7F	TVF Cutoff Freq	-64~+63 (=NRPN# 100/CC#75)	40	0
40 1x 36	00 00 01	00~7F	TONE MODIFY4	-64~+63 (=NRPN# 102/CC#72)	40	0
40 1x 37	00 00 01	00~7F	TVF Resonance	-64~+63 (=NRPN# 10/CC#78)	40	0
40 1x 40	00 00 0C	00~7F	TONE MODIFY5	-64~+63 [cents]	40	0 [cents]
40 1x 41#		00~7F	TVF&TVA Env.attack	-64~+63 [cents]	40	0 [cents]
40 1x 42#		00~7F	TONE MODIFY6	-64~+63 [cents]	40	0 [cents]
40 1x 43#		00~7F	TVF&TVA Env.decay	-64~+63 [cents]	40	0 [cents]
40 1x 44#		00~7F	TONE MODIFY7	-64~+63 [cents]	40	0 [cents]
40 1x 45#		00~7F	TVF&TVA Env.release	-64~+63 [cents]	40	0 [cents]
40 1x 46#		00~7F	TONE MODIFY8	-64~+63 [cents]	40	0 [cents]
40 1x 47#		00~7F	Vibrato Delay	-64~+63 [cents]	40	0 [cents]
40 1x 48#		00~7F	SCALE TUNING C	-64~+63 [cents]	40	0 [cents]
40 1x 49#		00~7F	SCALE TUNING C#	-64~+63 [cents]	40	0 [cents]
40 1x 4A#		00~7F	SCALE TUNING D	-64~+63 [cents]	40	0 [cents]
40 1x 4B#		00~7F	SCALE TUNING D#	-64~+63 [cents]	40	0 [cents]
40 1x 4C#		00~7F	SCALE TUNING E	-64~+63 [cents]	40	0 [cents]
40 1x 4D#		00~7F	SCALE TUNING F	-64~+63 [cents]	40	0 [cents]
40 1x 4E#		00~7F	SCALE TUNING F#	-64~+63 [cents]	40	0 [cents]
40 1x 4F#		00~7F	SCALE TUNING G	-64~+63 [cents]	40	0 [cents]
40 1x 50#		00~7F	SCALE TUNING G#	-64~+63 [cents]	40	0 [cents]
40 1x 51#		00~7F	SCALE TUNING A	-64~+63 [cents]	40	0 [cents]
40 1x 52#		00~7F	SCALE TUNING A#	-64~+63 [cents]	40	0 [cents]
40 1x 53#		00~7F	SCALE TUNING B	-64~+63 [cents]	40	0 [cents]

- SCALE TUNING is a function that allows fine adjustment to the pitch of each note in the octave. The pitch of each identically-named note in all octaves will change simultaneously. A setting of +/-0 cents (40H) is equal temperament.

Address(H)	Size(H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 2x 00	00 00 01	28~58	MOD PITCH CONTROL	-24~+24 [semitones]	40	0 [semitones]
40 2x 01	00 00 01	00~7F	MOD TVF CUTOFF CONTROL	-9600~+9600 [cents]	40	0 [cents]
40 2x 02	00 00 01	00~7F	MOD AMPLITUDE CONTROL	-100.0~+100.0 [%]	40	0 [%]
40 2x 03	00 00 01	00~7F	MOD LFO1 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 04	00 00 01	00~7F	MOD LFO1 PITCH DEPTH	0~600 [cents]	0A	10 [cents]
40 2x 05	00 00 01	00~7F	MOD LFO1 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 06	00 00 01	00~7F	MOD LFO1 TVA DEPTH	0~100.0 [%]	00	0 [%]
40 2x 07	00 00 01	00~7F	MOD LFO2 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 08	00 00 01	00~7F	MOD LFO2 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 09	00 00 01	00~7F	MOD LFO2 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 0A	00 00 01	00~7F	MOD LFO2 TVA DEPTH	0~100.0 [%]	00	0 [%]

- All MOD control parameters are ignored whenever you use sounds (XV patches) with CC00 values ranging from 80 to 91.

Address(H)	Size(H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 2x 10	00 00 01	40~58	BEND PITCH CONTROL	0~24 [semitones]	42	2 [semitones]
40 2x 11	00 00 01	00~7F	BEND TVF CUTOFF CONTROL	-9600~+9600 [cents]	40	0 [cents]
40 2x 12	00 00 01	00~7F	BEND AMPLITUDE CONTROL	-100.0~+100.0 [%]	40	0 [%]
40 2x 13	00 00 01	00~7F	BEND LFO1 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 14	00 00 01	00~7F	BEND LFO1 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 15	00 00 01	00~7F	BEND LFO1 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 16	00 00 01	00~7F	BEND LFO1 TVA DEPTH	0~100.0 [%]	00	0 [%]
40 2x 17	00 00 01	00~7F	BEND LFO2 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 18	00 00 01	00~7F	BEND LFO2 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 19	00 00 01	00~7F	BEND LFO2 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 1A	00 00 01	00~7F	BEND LFO2 TVA DEPTH	0~100.0 [%]	00	0 [%]

- All BEND control parameters are ignored whenever you use sounds (XV patches) with CC00 values ranging from 80 to 91.

40 2x 20	00 00 01	28~58	CAf PITCH CONTROL	-24~+24 [semitones]	40	0 [semitones]
40 2x 21	00 00 01	00~7F	CAf TVF CUTOFF CONTROL	-9600~+9600 [cents]	40	0 [cents]
40 2x 22	00 00 01	00~7F	CAf AMPLITUDE CONTROL	-100.0~+100.0 [%]	40	0 [%]
40 2x 23	00 00 01	00~7F	CAf LFO1 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 24	00 00 01	00~7F	CAf LFO1 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 25	00 00 01	00~7F	CAf LFO1 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 26	00 00 01	00~7F	CAf LFO1 TVA DEPTH	0~100.0 [%]	00	0 [%]
40 2x 27	00 00 01	00~7F	CAf LFO2 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]

40 2x 28	00 00 01	00~7F	CAf LFO2 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 29	00 00 01	00~7F	CAf LFO2 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 2A	00 00 01	00~7F	CAf LFO2 TVA DEPTH	0~100.0 [%]	00	0 [%]
40 2x 30	00 00 01	28~58	PAf PITCH CONTROL	-24~-+24 [semitones]	40	0 [semitones]
40 2x 31	00 00 01	00~7F	PAf TVF CUTOFF CONTROL	-9600~+9600 [cents]	40	0 [cents]
40 2x 32	00 00 01	00~7F	PAf AMPLITUDE CONTROL	-100.0~+100.0 [%]	40	0 [%]
40 2x 33	00 00 01	00~7F	PAf LFO1 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 34	00 00 01	00~7F	PAf LFO1 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 35	00 00 01	00~7F	PAf LFO1 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 36	00 00 01	00~7F	PAf LFO1 TVA DEPTH	0~100.0 [%]	00	0 [%]
40 2x 37	00 00 01	00~7F	PAf LFO2 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01	00~7F	PAf LFO2 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 39	00 00 01	00~7F	PAf LFO2 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 3A	00 00 01	00~7F	PAf LFO2 TVA DEPTH	0~100.0 [%]	00	0 [%]

- All PAf control parameters are ignored whenever you use sounds (XV patches) with CC 00 values ranging from 80 to 91.

40 2x 40	00 00 01	28~58	CC1 PITCH CONTROL	-24~-+24 [semitones]	40	0 [semitones]
40 2x 41	00 00 01	00~7F	CC1 TVF CUTOFF CONTROL	-9600~+9600 [cents]	40	0 [cents]
40 2x 42	00 00 01	00~7F	CC1 AMPLITUDE CONTROL	-100.0~+100.0 [%]	40	0 [%]
40 2x 43	00 00 01	00~7F	CC1 LFO1 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 44	00 00 01	00~7F	CC1 LFO1 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 45	00 00 01	00~7F	CC1 LFO1 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 46	00 00 01	00~7F	CC1 LFO1 TVA DEPTH	0~100.0 [%]	00	0 [%]
40 2x 47	00 00 01	00~7F	CC1 LFO2 RATE CONTROL	-10.0~+10.0 [Hz]	40	0 [Hz]
40 2x 48	00 00 01	00~7F	CC1 LFO2 PITCH DEPTH	0~600 [cents]	00	0 [cents]
40 2x 49	00 00 01	00~7F	CC1 LFO2 TVF DEPTH	0~2400 [cents]	00	0 [cents]
40 2x 4A	00 00 01	00~7F	CC1 LFO2 TVA DEPTH	0~100.0 [%]	00	0 [%]

- You may not always be able to obtain the desired effect by modifying the LFO 1 and LFO 2 parameters.

4. Supplementary material

● Decimal and Hexadecimal table

(An "H" is appended to the end of numbers in hexadecimal notation.)

In MIDI documentation, data values and addresses/sizes of Exclusive messages, etc. are expressed as hexadecimal values for each 7 bits.

The following table shows how these correspond to decimal numbers.

Dec.	Hex.	Dec.	Hex.	Dec.	Hex.	Dec.	Hex.
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

- Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.
- A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128+bb.
- In the case of values which have a +/- sign, 00H = -64, 40H = +/-0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +/-0, and 7F 7FH = +8191. For example, if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128+bb -64 x 128.

- Data marked "Use nibbled data" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16+b.

*[Example 1]*What is the decimal expression of 5AH ?

From the preceding table, 5AH = 90

*[Example 2]*What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52
18 x 128+52 = 2356

*[Example 3]*What is the decimal expression of the nibbled value 0A 03 09 0D ?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
(10 x 16+3) x 16+9 x 16+13 = 41885

*[Example 4]*What is the nibbled expression of the decimal value 1258?

16) 1258
16) 78 ... 10
16) 4 ... 14
0 ... 4

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the result is: 00 04 0E 0AH.

● Examples of actual MIDI messages

*[Example 1]*92 3E 5F

9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

*[Example 2]*CE 49

CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, program number 74 (Flute in GS).

*[Example 3]*EA 00 28

EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H = 0) is the LSB and the 3rd byte (28H = 40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 12+80 = 8192) is 0, so this Pitch Bend Value is 28 00H - 40 00H = 40 x 12+80 - (64 x 12+80) = 5120 -8192 = -3072 If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change -200 cents, so in this case -200 x (-3072) ÷ (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

*[Example 4]*B3 64 00 65 00 06 0C 26 00 64 7F 65 7F

BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the control number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

B3 64 00 MIDI ch.4, lower byte of RPN parameter number: 00H
(B3) 65 00 (MIDI ch.4) upper byte of RPN parameter number: 0 0H
(B3) 06 0C (MIDI ch.4) upper byte of parameter value: 0CH

(B3) 26 00 (MIDI ch.4) lower byte of parameter value: 00H
 (B3) 64 7F (MIDI ch.4) lower byte of RPN parameter number: 7FH
 (B3) 65 7F (MIDI ch.4) upper byte of RPN parameter number: 7FH

In other words, the above messages specify a value of 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to ± 12 semitones (1 octave). (On GS sound generators the LSB of Pitch Bend Sensitivity is ignored, but the LSB should be transmitted anyway (with a value of 0) so that operation will be correct on any device.)

Once the parameter number has been specified for RPN or NRPN, all Data Entry messages transmitted on that same channel will be valid, so after the desired value has been transmitted, it is a good idea to set the parameter number to 7F 7FH to prevent accidents.

This is the reason for the (B3) 64 7F (B3) 65 7F at the end. It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in [Example 4]. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound generator will then misinterpret the data. Take care to give each event its own status.

It is also necessary that the RPN or NRPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN = 96, and about 5 ticks for TPQN = 480).

* TPQN: Ticks Per Quarter Note

● Example of an Exclusive message checksum calculation

Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted Exclusive message.

○ How to calculate the checksum (hexadecimal numbers are indicated by "H")

The checksum is a value derived by adding the address, size, and checksum itself and inverting the lower 7 bits.

Here's an example of how the checksum is calculated. We will assume that in the exclusive (SysEx) message we are transmitting, the address is aa bb ccH and the data or size is "dd ee ffH".

aa+bb+cc+dd+ee+ff = sum
 sum \div 128 = quotient ... remainder
 128 - remainder = checksum

[Example 1] Setting REVERB MACRO to "ROOM 3"

According to the "Patch parameters" on page 11, the REVERB MACRO Address is "40 01 30H", and ROOM 3 corresponds to "02H". Thus...

F0 41 10 42 12 40 01 30 02 ?? F7
 (1) (2) (3) (4) (5) address data checksum (6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
 (4) Model ID (GS) (5) Command ID (DT1) (6) End of Exclusive

Next, we calculate the checksum.

40H+01H+30H+02H = 64+1+48+2 = 115 (sum)
 115 (sum) \div 128 = 0 (quotient) ... 115 (remainder)
 checksum = 128 - 115 (remainder) = 13 = 0DH

This means that F0 41 10 42 12 40 01 30 02 0D F7 is the message we need to transmit.

[Example 2] Setting REVERB LEVEL to "12"

According to the "Patch parameters" on page 11, the REVERB LEVEL Address is "40 01 33H", and the parameter value is "0CH". Thus,

F0 41 10 42 12 40 01 33 0C ?? F7
 (1) (2) (3) (4) (5) address data checksum (6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
 (4) Model ID (GS) (5) Command ID (DT1) (6) EOX

Next we calculate the checksum.

40H + 01H + 33H + 0CH = 64 + 1 + 51 + 12 = 128 (sum)
 128 (sum) \div 128 = 0 (quotient) ... 0 (remainder)
 checksum = 128 - 0 (remainder) = 128 = 80H

In this case, however, the checksum value should be 00H, not 80H. You should use 00H if the remainder is 0. This means that F0 41 10 42 12 40 01 33 0C 00 F7 is the message we transmit.

● About the Tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.

In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).

RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.

The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part. Frequently used tuning values are given in the following table for your reference. Values are in hexadecimal (decimal in parentheses).

Hz at A4	cents	RPN #1	Sys.Ex. 40 00 00
445.0	+19.56	4C 43 (+1603)	00 04 0C 04 (+196)
444.0	+15.67	4A 03 (+1283)	00 04 09 0D (+157)
443.0	+11.76	47 44 (+ 964)	00 04 07 06 (+118)
442.0	+ 7.85	45 03 (+ 643)	00 04 04 0F (+79)
441.0	+ 3.93	42 42 (+ 322)	00 04 02 07 (+39)
440.0	0	40 00 (0)	00 04 00 00 (0)
439.0	- 3.94	3D 3D (- 323)	00 03 0D 09 (-39)
438.0	- 7.89	3A 7A (- 646)	00 03 0B 01 (-79)

[Example] Setting the tuning of MIDI channel 3 to A4 = 442.0 Hz

Send RPN#1 to MIDI channel 3. From the above table, the value is 45 03H.

B2 64 00 (MIDI ch.3, lower byte of RPN parameter number: 00H)
 (B2) 65 01 (MIDI ch.3) upper byte of RPN parameter number: 01H
 (B2) 06 45 (MIDI ch.3) upper byte of parameter value: 45H
 (B2) 26 03 (MIDI ch.3) lower byte of parameter value: 03H
 (B2) 64 7F (MIDI ch.3) lower byte of RPN parameter number: 7FH
 (B2) 65 7F (MIDI ch.3) upper byte of RPN parameter number: 7FH

INDIVIDUAL PARAMETER TRANSMISSION XV GENERATION (Model ID JM-5 = 00H, 00H, 08H)

Individual Parameter Transmission transmits data (or requests data) for one parameter as one exclusive message (one packet of "F0...F7"). In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map". Addresses marked at "#" cannot be used as starting addresses.

■ System Exclusive messages

Data Set 1 (DT1) is the only System Exclusive messages transmitted by the JM-5.

● Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 08H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H
Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID	
	00H, 00H, 08H Model ID (JM-5)	
12H	Command ID (DT1)	
aaH	Address MSB: upper byte of the starting address of the data to be sent	
bbH	Address: middle 1 byte of the starting address of the data to be sent	
ccH	Address: middle 2 byte of the starting address of the data to be sent	
ddH	Address LSB: lower byte of the starting address of the data to be sent.	
eeH	Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.	
:	:	
ffH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

- The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size.
- Data larger than 128 bytes will be divided into packets of 128 bytes or less, and each packet will be sent at an interval of about 40 ms.
- Regarding the checksum, please refer to page 15.

○ Common MFX A

Offset Address	Description	
10 00 72 00	0aaa aaaa	MFX A Type (0 - 83)
10 00 72 01	0aaa aaaa	MFX A Dry Send Level (0 - 127)
10 00 72 02	0aaa aaaa	MFX A Chorus Send Level (0 - 127)
10 00 72 03	0aaa aaaa	MFX A Reverb Send Level (0 - 127)
10 00 72 05	0aaa aaaa	MFX A Control 1 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4
10 00 72 06	0aaa aaaa	MFX A Control 1 Sens (1 - 127) -63~+63
10 00 72 07	0aaa aaaa	MFX A Control 2 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4
10 00 72 08	0aaa aaaa	MFX A Control 2 Sens (1 - 127) -63 - +63
10 00 72 09	0aaa aaaa	MFX A Control 3 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4
10 00 72 0A	0aaa aaaa	MFX A Control 3 Sens (1 - 127) -63 - +63
10 00 72 0B	0aaa aaaa	MFX A Control 4 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4
10 00 72 0C	0aaa aaaa	MFX A Control 4 Sens (1 - 127) -63 - +63
10 00 72 0D	000a aaaa	MFX A Control Assign 1 (0 - 16) OFF, 1 - 16
10 00 72 0E	000a aaaa	MFX A Control Assign 2 (0 - 16) OFF, 1 - 16
10 00 72 0F	000a aaaa	MFX A Control Assign 3 (0 - 16) OFF, 1 - 16
10 00 72 10	000a aaaa	MFX A Control Assign 4 (0 - 16) OFF, 1 - 16
#10 00 72 11	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 1 (12768~52768) -20000~+20000

#10 00 72 15	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 2 (12768~52768) -20000~+20000
#10 00 72 19	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 3 (12768~52768) -20000~+20000
#10 00 72 1D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 4 (12768~52768) -20000~+20000
#10 00 72 21	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 5 (12768~52768) -20000~+20000
#10 00 72 25	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 6 (12768~52768) -20000~+20000
#10 00 72 29	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 7 (12768~52768) -20000~+20000
#10 00 72 2D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 8 (12768~52768) -20000~+20000
#10 00 72 31	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 9 (12768~52768) -20000~+20000
#10 00 72 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 10 (12768~52768) -20000~+20000
#10 00 72 39	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 11 (12768~52768) -20000~+20000
#10 00 72 3D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 12 (12768~52768) -20000~+20000
#10 00 72 41	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 13 (12768~52768) -20000~+20000
#10 00 72 45	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 14 (12768~52768) -20000~+20000
#10 00 72 49	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 15 (12768~52768) -20000~+20000
#10 00 72 4D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 16 (12768~52768) -20000~+20000
#10 00 72 51	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 17 (12768~52768) -20000~+20000
#10 00 72 55	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 18 (12768~52768) -20000~+20000

#10 00 72 59	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 19	(12768~52768) -20000~+20000
#10 00 72 5D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 20	(12768~52768) -20000~+20000
#10 00 72 61	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 21	(12768~52768) -20000~+20000
#10 00 72 65	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 22	(12768~52768) -20000~+20000
#10 00 72 69	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 23	(12768~52768) -20000~+20000
#10 00 72 6D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 24	(12768~52768) -20000~+20000
#10 00 72 71	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 25	(12768~52768) -20000~+20000
#10 00 72 75	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 26	(12768~52768) -20000~+20000
#10 00 72 79	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 27	(12768~52768) -20000~+20000
#10 00 72 7D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 28	(12768~52768) -20000~+20000
#10 00 73 01	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 29	(12768~52768) -20000~+20000
#10 00 73 05	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 30	(12768~52768) -20000~+20000
#10 00 73 09	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 31	(12768~52768) -20000~+20000
#10 00 73 0D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX A Parameter 32	(12768~52768) -20000~+20000

○ Common MFX B

Offset Address	Description		
10 00 74 00	0aaa aaaa	MFX B Type	(0 - 83)
10 00 74 01	0aaa aaaa	MFX B Dry Send Level	(0 - 127)
10 00 74 02	0aaa aaaa	MFX B Chorus Send Level	(0 - 127)
10 00 74 03	0aaa aaaa	MFX B Reverb Send Level	(0 - 127)
10 00 74 05	0aaa aaaa	MFX B Control 1 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 74 06	0aaa aaaa	MFX B Control 1 Sens	(1 - 127) -63~+63
10 00 74 07	0aaa aaaa	MFX B Control 2 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 74 08	0aaa aaaa	MFX B Control 2 Sens	(1 - 127) -63 - +63

10 00 74 09	0aaa aaaa	MFX B Control 3 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 74 0A	0aaa aaaa	MFX B Control 3 Sens	(1 - 127) -63 - +63
10 00 74 0B	0aaa aaaa	MFX B Control 4 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 74 0C	0aaa aaaa	MFX B Control 4 Sens	(1 - 127) -63 - +63
10 00 74 0D	000a aaaa	MFX B Control Assign 1(0 - 16) OFF, 1 - 16	
10 00 74 0E	000a aaaa	MFX B Control Assign 2(0 - 16) OFF, 1 - 16	
10 00 74 0F	000a aaaa	MFX B Control Assign 3(0 - 16) OFF, 1 - 16	
10 00 74 10	000a aaaa	MFX B Control Assign 4(0 - 16) OFF, 1 - 16	
#10 00 74 11	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 1	(12768~52768) -20000~+20000
#10 00 74 15	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 2	(12768~52768) -20000~+20000
#10 00 74 19	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 3	(12768~52768) -20000~+20000
#10 00 74 1D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 4	(12768~52768) -20000~+20000
#10 00 74 21	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 5	(12768~52768) -20000~+20000
#10 00 74 25	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 6	(12768~52768) -20000~+20000
#10 00 74 29	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 7	(12768~52768) -20000~+20000
#10 00 74 2D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 8	(12768~52768) -20000~+20000
#10 00 74 31	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 9	(12768~52768) -20000~+20000
#10 00 74 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 10	(12768~52768) -20000~+20000
#10 00 74 39	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 11	(12768~52768) -20000~+20000
#10 00 74 3D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 12	(12768~52768) -20000~+20000
#10 00 74 41	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 13	(12768~52768) -20000~+20000
#10 00 74 45	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 14	(12768~52768) -20000~+20000

#10 00 74 49	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 15	(12768~52768) -20000~+20000
#10 00 74 4D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 16	(12768~52768) -20000~+20000
#10 00 74 51	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 17	(12768~52768) -20000~+20000
#10 00 74 55	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 18	(12768~52768) -20000~+20000
#10 00 74 59	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 19	(12768~52768) -20000~+20000
#10 00 74 5D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 20	(12768~52768) -20000~+20000
#10 00 74 61	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 21	(12768~52768) -20000~+20000
#10 00 74 65	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 22	(12768~52768) -20000~+20000
#10 00 74 69	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 23	(12768~52768) -20000~+20000
#10 00 74 6D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 24	(12768~52768) -20000~+20000
#10 00 74 71	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 25	(12768~52768) -20000~+20000
#10 00 74 75	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 26	(12768~52768) -20000~+20000
#10 00 74 79	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 27	(12768~52768) -20000~+20000
#10 00 74 7D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 28	(12768~52768) -20000~+20000
#10 00 75 01	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 29	(12768~52768) -20000~+20000
#10 00 75 05	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 30	(12768~52768) -20000~+20000
#10 00 75 09	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 31	(12768~52768) -20000~+20000

#10 00 75 0D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX B Parameter 32	(12768~52768) -20000~+20000
--------------	--	--------------------	--------------------------------

○ Common MFX C

Offset Address	Description		
10 00 76 00	0aaa aaaa	MFX C Type	(0 - 83)
10 00 76 01	0aaa aaaa	MFX C Dry Send Level	(0 - 127)
10 00 76 02	0aaa aaaa	MFX C Chorus Send Level	(0 - 127)
10 00 76 03	0aaa aaaa	MFX C Reverb Send Level	(0 - 127)
10 00 76 05	0aaa aaaa	MFX C Control 1 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 76 06	0aaa aaaa	MFX C Control 1 Sens	(1 - 127) -63~+63
10 00 76 07	0aaa aaaa	MFX C Control 2 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 76 08	0aaa aaaa	MFX C Control 2 Sens	(1 - 127) -63 - +63
10 00 76 09	0aaa aaaa	MFX C Control 3 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 76 0A	0aaa aaaa	MFX C Control 3 Sens	(1 - 127) -63 - +63
10 00 76 0B	0aaa aaaa	MFX C Control 4 Source OFF, CC01 - CC31, CC33 - CC95, BEND, AFT, SYS1 - SYS4	(0 - 101)
10 00 76 0C	0aaa aaaa	MFX C Control 4 Sens	(1 - 127) -63 - +63
10 00 76 0D	000a aaaa	MFX C Control Assign 1(0 - 16) OFF, 1 - 16	
10 00 76 0E	000a aaaa	MFX C Control Assign 2(0 - 16) OFF, 1 - 16	
10 00 76 0F	000a aaaa	MFX C Control Assign 3(0 - 16) OFF, 1 - 16	
10 00 76 10	000a aaaa	MFX C Control Assign 4(0 - 16) OFF, 1 - 16	
#10 00 76 11	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 1	(12768~52768) -20000~+20000
#10 00 76 15	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 2	(12768~52768) -20000~+20000
#10 00 76 19	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 3	(12768~52768) -20000~+20000
#10 00 76 1D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 4	(12768~52768) -20000~+20000
#10 00 76 21	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 5	(12768~52768) -20000~+20000
#10 00 76 25	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 6	(12768~52768) -20000~+20000
#10 00 76 29	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 7	(12768~52768) -20000~+20000
#10 00 76 2D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 8	(12768~52768) -20000~+20000
#10 00 76 31	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 9	(12768~52768) -20000~+20000
#10 00 76 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 10	(12768~52768) -20000~+20000

#10 00 76 39	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 11	(12768~52768) -20000~+20000
#10 00 76 3D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 12	(12768~52768) -20000~+20000
#10 00 76 41	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 13	(12768~52768) -20000~+20000
#10 00 76 45	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 14	(12768~52768) -20000~+20000
#10 00 76 49	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 15	(12768~52768) -20000~+20000
#10 00 76 4D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 16	(12768~52768) -20000~+20000
#10 00 76 51	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 17	(12768~52768) -20000~+20000
#10 00 76 55	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 18	(12768~52768) -20000~+20000
#10 00 76 59	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 19	(12768~52768) -20000~+20000
#10 00 76 5D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 20	(12768~52768) -20000~+20000
#10 00 76 61	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 21	(12768~52768) -20000~+20000
#10 00 76 65	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 22	(12768~52768) -20000~+20000
#10 00 76 69	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 23	(12768~52768) -20000~+20000
#10 00 76 6D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 24	(12768~52768) -20000~+20000
#10 00 76 71	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 25	(12768~52768) -20000~+20000
#10 00 76 75	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 26	(12768~52768) -20000~+20000
#10 00 76 79	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 27	(12768~52768) -20000~+20000

#10 00 76 7D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 28	(12768~52768) -20000~+20000
#10 00 77 01	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 29	(12768~52768) -20000~+20000
#10 00 77 05	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 30	(12768~52768) -20000~+20000
#10 00 77 09	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 31	(12768~52768) -20000~+20000
#10 00 77 0D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX C Parameter 32	(12768~52768) -20000~+20000

○ Part Output

Offset Address	Description	
10 00 2x 20	0000 aaaa	Part Output Assign Song (0, 3) 0= MFX 3=Main
10 00 2x 21	0000 aaaa	Part Output Song MFX Select (3~5) MFX A, MFX B, MFX C

- See the table on page 12 for the "X" value.

○ Song Part Equalizer

Offset Address	Description	
10 00 2x 32	0000 000a	Equalizer Switch (0~1) OFF, ON
10 00 2x 33	0000 0aaa	Equalizer Low Freq (0~5) 90, 150, 180, 300, 360, 600 [Hz]
10 00 2x 34	000a aaaa	Equalizer Low Gain (0~30) -15~+15 [dB]
10 00 2x 35	000a aaaa	Equalizer Mid Freq (0~16) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]
10 00 2x 36	000a aaaa	Equalizer Mid Gain (0~4) -15~+15 [dB]
10 00 2x 37	0000 0aaa	Equalizer Mid Q (0~30) 0.5, 1.0, 2.0, 4.0, 8.0
10 00 2x 38	0000 0aaa	Equalizer Hi Freq (0~6) 1500, 2000, 3000, 4000, 6000, 8000, 12000 [Hz]
10 00 2x 39	000a aaaa	Equalizer High Gain (0~30) -15~+15 [dB]

MIDI Implementation Chart

[VIMA]

Date: July 2011

Model: JM-5

Version: 1.00

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1~16 1~16, Off	1~16 1~16, Off	16 parts (SMF songs) 3 parts (External In)
Mode	Default Message Altered	Mode 3 Mode 3, 4 (M=1) *****	Mode 3 Mode 3, 4 (M=1)	*2
Note Number	True Voice	0~127 *****	0~127 0~127	
Velocity	Note ON Note OFF	O *1 X	O *1 X	
After Touch	Key's Ch's	O O	O *1 O *1	
Pitch Bend		O *1	O *1	
Control Change	0,32	O *1	O *1	Bank Select
	1	O *1	O *1	Modulation
	5	O	O	Portamento Time
	6, 38	O	O *1	Data Entry
	7	O *1	O *1	Volume
	10	O *1	O *1	Panpot
	11	O *1	O *1	Expression
	64	O *1	O *1	Hold 1
	65	O	O *1	Portamento
	66	O *1	O *1	Sostenuto
	67	O *1	O *1	Soft
	69	O	O	Hold 2
	71	O	O	Resonance
	72	O	O	Realease Time
	73	O	O	Attack Time
	74	O	O	Cutoff
	75	O	O	Decay Time
	76	O	O	Vibrato Rate
	77	O	O	Vibrato Depth
	78	O	O	Vibrato Delay
	84	O	O	Portamento Control
	91	O *1	O (Reverb) *1	Effect 1 Depth
	93	O *1	O (Chorus) *1	Effect 3 Depth
	98, 99	O *1	O *1	NRPN LSB, MSB
	100, 101	O *1	O *1	RPN LSB, MSB
Program Change	True #	O *1 *****	O *1 0~127	Program Number 1~128
System Exclusive		O *1	O *1	
System Common	Song Position Pointer Song Sel Tune	O *1 X X	O X X	
System Real Time	Clock Commands	O *1 O *1	O *1 O *1	
Aux Messages	All Sounds Off Reset All Controllers Local On/Off All Notes Off Active Sensing Reset	X X X X O X	O (120, 126, 127) O (121) O (only for Song parts) O (123-125) O X	
Notes		*1 O X is selectable *2 Recognized as M= 1 even if M≠ 1		

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

O: Yes
X: No